

ETHNOBOTANICAL PROFILE OF TEHSIL BALAKOT FOR VARIOUS RESPIRATORY AND GASTROINTESTINAL DISORDERS IN TEHSIL BALAKOT DISTRICT MANSEHRA

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ABSTRACT

To recognize, evaluate, assort, document respiratory and gastrointestinal medicinal plants used within Tehsil Balakot. A list of conventional healers of Balakot was arranged and information was obtained through questionnaires and interviews. Subsequently sample of different species were collected from preferred areas and deposited in the Herbarium of Govt. Post graduate college Mansehra. Results shows that 42 different medicinal species belong to 33 several families are being used for the treatment of various digestive and respiratory disorders. The commonly used plants parts were leaves and roots. The traditional dosage forms were liquid, powder, granules, decoction and juice. People of the tehsil Balakot have belief that plants have influential role in the cure of respiratory and digestive diseases and they used therapeutic plants as ancients to indulgence of special disorders. Our research showed significance of traditional medicines in this area as source of medicament for pharmacist in future.

Keywords: Medicinal plants, Herbal, Ethno botany, Respiratory diseases, Gastrointestinal diseases, Tehsil Balakot.

INTRODUCTION.

Balakot is the largest tehsil of district Mansehra. It comprises of 12 union council. Its population 273,089. The major spoken language of the area is Hindko. Ethnobotany is the science which studies the association amid people and surrounding, chiefly the plants. Ethnobotany is a scientific discipline that studies the traditional medicine by interrelating the people and plants of a region. It describes the practical uses of the local plants by the people via the traditional knowledge of their local culture. (1, 2) The plant uses include medicine,

food, intoxicants, clothing, shelter, etc. The old-fashioned rural people of the vicinity mostly depend upon the locally found wild plants for common health issues.

Approximately 80% of the entire soul residents depends on traditional medicines for common disorders.(1) Ethno-medicinal investigations have recognized the importance of the correlation linking the usage of plants with the communities.⁹The extract of various plants have been used as indigenous medicine all over the world. Plants are the fundamental source of conventional medicines and have relatively no toxic effects. These plant sources are easily available and inexpensive. (17). Out of 422,000 flowering Plants reported from around the world, more than 50,000 have been used for medicinal purposes. In Pakistan about 600 have been reported for ethno-medicinal studies (15,16).

The start of the herbal medicines can be traced back to China about 5000 years ago (18). Chinese, Egyptians, Indians and Sumerians make some of the oldest civilizations using foods as healers (3) At present various scientific researchers are undergoing for exploring the usage of natural and traditional plants especially the dietary agents like fruits, vegetables, herbs and spices as an alternative to modern medicine for disease control. Natural foods and their respective beneficial effects have been proved to show a strong association (3, 4). A number of investigations have affirmed the antioxidant role of dietary agents in overpowering the inflammatory conditions and even malignancies mainly via deferring the reactive oxygen species (ROS).(3,5).Also, several plant parts have been considered for investigation for their new molecular targets in the body, not only treatment but also for the prophylaxis of the prevailing health issues especially inflammations, depression, diabetes and cancer.(6). To quench the urge of improvement in health with safer and accessible medicinal options through natural sources especially plants, various novel cliché have been introduced including nutraceutical, functional food, dietary supplement, tonics, food processing, organic food, nutrification (food fortification or food enrichment), food additive, antioxidants, detox, bioactive peptidases.(5,6). Other terms include medicinal plants, medicinal herbs, herbal medicine, herbalism, Phyto-therapy, traditional medicine, folk medicine, indigenous medicine, herbalism, ethnomedicine, ethnobotany, medical anthropology, home remedy, granny cure etc. (2,7,8).

Among various prevailing ailments, the most common and exasperating ones are the infections of the respiratory tract and the gastrointestinal tract. Respiratory and digestive illnesses can be caused by several reasons, by the virtue of microorganisms or toxins in the

environment. Amongst the most common respiratory tract diseases are flu, Pharyngitis, bronchitis, bronchopneumonia, pulmonary tuberculosis, asthma, allergic rhinitis, chronic and obstructive pulmonary disease (COPD), etc. The main symptoms of these disorders are similar, like headache, cough, fever, flushing, throat, ears or muscle aches, general malaise and tiredness, Gastrointestinal diseases common in our setup are infectious diarrhea, chronic constipation, and peptic ulcers, tumors of the stomach or intestines and intestinal tuberculosis. These gastrointestinal disturbances present with anorexia, nausea, heartburn, vomiting, dyspepsia, indigestion, flatulence, epigastric pain aphthous ulcers, diarrhea, constipation, abdominal pain, hematemesis, melena and intestinal obstruction such gastrointestinal disorders are caused by eating irregular foods. (11,12). The current study was the initial attempt to mark digestive and respiratory diseases in the unfamiliar tehsil Balakot. The main aim of the study was to investigate, preserve and document the first ethnobotanical survey. The accessible prose shows that such studies can represent the initial point for the growth of new active chemical ingredient based on traditional knowledge. (16).

MATERIALS AND METHOD

Regular ethnomedicinal surveys were arranged from February 2021 to November 2022 in 74 villages of Tehsil Balakot valley, with the plan to collect and document important traditional knowledge of plants from the local people. Before starting the interview, we educated local participants regarding our work being an educational research work, not meant for any commercial or other benefits. We also received formal consent from informants regarding data collection and publication, interviews and ethnomedicinal data collection. The ethnomedicinal information was mainly obtained through questionnaires, interviews, group discussion and causal walks. For ethnobotanical investigation, we mostly contacted the traditional herbalists, elder people and farmers, having sufficient knowledge of indigenous medicinal plants. Those informants who had more ethnobotanical information and experience were requested to go with us on causal walks in the field. Meanwhile the people who voluntarily agreed were further interviewed and invited for group discussions. In ethnobotanical interviews the related questions had been asked in the local languages, Gojari and Hindko, spoken throughout the study area. In ethnobotanical interviews and group discussions with local informants, we asked related questions regarding the ethnomedicinal uses, plant parts used, the local name of the plants, herbal formulation methods, diseases

treated and administration methods. Almost 76 Hakeems were interviewed in their herbal shops. We also conducted different group discussions where 79 respondents including 37 village elders were interviewed. During interviews, the informants used the local name of plants for specific diseases. After confirming plant identity with informants, the plants were photographed and collected. The collected plants were brought to the herbarium in the Department of Botany, Government Postgraduate College, Mansehra. The collected plants were identified with the help of expert plant taxonomist. For naming the plant species and current taxonomy, we followed the plant list(www.theplantlist.org) and international plant names index(www.ipni.org). During field work the necessary equipment used included study area map, plant presser, field note book, twig cutter, blotting paper, knife, polythene bags and digital camera.

RESULTS AND DISCUSSION

Total 270 informants were interview. 165 were male age 20-90 years, 105 females 20-80 years. Traditional ethno medicinal drivers, shepherds, Hakeem's and local informants were interviewed to seek wide range of information about the plants used for medicinal purposes. Some informants were interviewed more than one time due to seasonal visits for plants species availability. Data were obtained through questionnaire. *Table 1* represents the 42 plants species belonging to 29 Genera and representing 33 families.

Table-1: Ethno-Medicinal plants of Tehsil Balakot, District Mansehra

S. No	Scientific name	Local Name	Family	Habit	Plants parts used	Disease/drug character	Administrati on mode	Preparatio n
1	<i>Allium cepa</i> L.	Piyaz	Alliaceae	Herb	Leaves	Antispasmodic, Carminative and cough	Orally.	Decoction .
2	<i>Adiantumcapillus-veneris</i> L.	Kokva	Adiantaceae	Herb	Leaves	Stomachache. Acidity.	Fumigation. Orally.	Infusion. Juice
3	<i>Amaranthus viridis</i> L.	Ganhar	Amaranthaceae	Herb	Leaves	Laxative, acute inflammation of respiratory ducts.	Orally, Rinsing,	Powder
4	<i>Ajugabracteosa</i> Wall. exBenth.	Korribooti	Lamiaceae	Herb	Whole plants	Chest burning, promote digestion, Asthama, coolong	Goute, orally	Decoction , juice
5	<i>Anaphalis margaritaceae</i> L.	Shakroo	Plantigenaceae	Herb	Wholw plant	Whooping cough, carminative against gastralia, nausea	Orally	Influsion, decoction.
6	<i>Berberis lyceum</i> Royle	Sunmbal	Berberidaceae	Shrub	Whole plant	Mouth thrush, piles, allergie, diarrhea,	Orally , For piles via	Powder, solution,

						indigestation	rectum	decoction.
7	<i>Boragoofficinalis</i> L.	Podeni	Borgeneaceae	Herb	Rhizome	To reduce acidity, Gastric pain, ulcer, Chronic cough,	Orally,	Crude, influsion, decoction.
8	<i>Bergenia ciliata</i> (Haw) Sternb.	But pave	Saxifargaceae	Herb	Leaves,rhizo me	Tonic, fever, diarrhoea, pulmonary affection, cough, cold and asthama.	Orally	Juice and influsion
9	<i>Cyperus rotundas</i> L.	Della	Cyperaceae	Herb	Whole plants	Laryngitis, acute rhinitis, anal fistulas.	Oral message	Powder and juice
10	<i>Cedrus deodar</i> (Roxb. ex D. Don) G.Don.	Diyar	Pinaceae	Tree	Wood	Pulmonary disorder and Vasodialator	Orally	Wood extract
11	<i>Ducrosiaanethifolia</i> (DC) Boiss.	Kugoo Moat	Apiaceae	Herb	Whole plant	Diverticular diseases, colitis, chronic epigastric, constipation.	Orally	Decoction , influsion.
12	<i>Duchesneaindica</i> (Jacks) Focke.	Mewa	Rosaceae	Herb	Fruits and leaves.	Intestialobstruction,gastri tis, lung infection.	Orally	Juice and powder.
13	<i>Daphne mucronata</i> Royle.	Kutaylal	Thymeleacea e	Shru b	Leaves	Mouth sores, indigestion.	Orally	crude
	<i>Elettaria cardamomum</i> Maton.	Ilachi	Zingiberaceae	Herb	Seed	Asthama, cough, colonic polyps	Orally	Decoction and crude

14	<i>Diospyros lotus</i> L.	Amlook	Ebenaceae	Tree	Fruits and leaves.	Indigestion, constipation, influenza and pneumonia.	Orally	Juice
15	<i>Glycyrrhiza glabra</i> L.	Malathi	Papilionaceae	Shrub	Roots	Sore throat	Orally	Decoction
16	<i>Geranium wallichianum</i> L.	Ratanjog	Geraniaceae	Herb	Rhizome and leaves	Tonsillitis, cough, acute and colitis	Orally	Powder and juice
17	<i>Hypericum perforatum</i> L.	Kantaron	Clusiaceae	Shrub	Aerial parts	Stomach ulcer, Flowers for allergic rhinitis and nasal polyps	Orally	Juice and decoction
18	<i>Justicia adhatoda adhatoda</i> L.	Behkair	Acanthaceae	Shrub	Leaves and roots	Asthma, anal fissures.	Fumigation, orally	Decoction
19	<i>Micromeria biflora</i> Benth.	Thandiboti	Lamiaceae	Herb	Whole plant	Cough	Orally	Juice
20	<i>Mentha longifolia</i> L.	Jangallipodena	Lamiaceae	Herb	Whole plant	Indigestion, vomiting, Nausea and pulmonary edema.	Orally	Decoction, powder
21	<i>Mentha spicata</i> L.	Angrezipodena	Lamiaceae	Herb	Aerial parts	Epigastric pain, stomach ulcers and pneumonia	Orally	Juice and crude
22	<i>Morus alba</i> Wall.	Shah tooti	Moraceae	Tree	Fruits and leaves	Fruits for cough and leaves for stomachache.	Orally	Powder
23	<i>Myrtus communis</i> L.	Myrtle	Myrtaceae	Shrub	Whole plants	Flower for stomach ulcer.	Orally	Decoction

				b		Leaves against diarrhea		n
24	<i>Morus nigra</i> L.	Toot	Moraceae	Tree	Fruits	Throat infections.	Orally	Juice
25	<i>Origanum majorana</i> L.		Lamiaceae	Herb	Aerial parts	Gastralgia, contipation and indigestion	Orally	Decoction
26	<i>Punicagranatum</i> L.	Anar	Puniaceae	Tree	Whole fruits	Stomach ulcer, Anemia, digestion	Orally	Juice
27	<i>Plantago major</i> L.	Chamchapatar	Plantaginaceae	Herb	Leaves	Throat infection	Orally	Juice
28	<i>Papaver somniferum</i> L.	Posat	Papaveraceae	Herb	Fruits	Analgesic, cough, sore throat, indigestion.	Orally	Decoction
29	<i>Pistacia integerrima</i> J. L. Stewart.	Kangar	Anacardiaceae	Tree	Fruits and leaves	Constipation, asthma, cough and epigastric pain.	Orally	Powder
30	<i>Prunus cornuta</i> L.	Kalkoth	Rosaceae	Shrub	Fruits and leaves	Fruits for lung cancer, chronic obstructive pulmonary diseases, and leaves for allergic rhinitis.	Orally	Decoction and juice
31	<i>Saussurea lappa</i> C.B. Clarke.	Kuthi	Asteraceae	Herb	Whole plants	Roots for tuberculosis, asthma and leaves for to reduce acidity in	Orally	Juice

						stomach.		
32	<i>Swertiachirata</i> H. Karst.	chirata	Gentianaceae	Herb	Aerial parts	Bronchial dilators, phrayngitis	Orally	Decoction
33	<i>Thymus linearis</i> L.	Chicken	Lamiaceae	Herb	Leaves	Bronchitis, asthma, stomach chronic ulcers.	Orally	Crude and decoction.
34	<i>Thymus richardi</i> L.	Chikanboti	Lamiacea	Herb	Whole plants	Epigastric pain, constipation, analgasic and throat infecvtion.	Orally	Decoction
35	<i>Tussilagofarfara</i> L.	Watpan	Asteraceae	Herb	Leaves	Cough and piles	Orally for cough and rectal for piles	Decoction
36	<i>Funariasp</i>		Funariaceae	Herb	Whole plants	Redduce acidity in stomach	Orally	Juice
37	<i>Viscum album</i> L.	Lorani	Loranthaceae	Herb	Fruits and leaves	Fruits for cough and leaves for constipation	Orally	Juice and powder
38	<i>Valerianajatamansi</i> Benth		Valerianacera e	Herb	Whole plants	Pneumonia	Orally	Decoction
39	<i>Maecellasp</i>	Guchhi	Marchelacea	Herb	Whole plants	Mouth sores	Orally	Juice
40	<i>Viola tricolor</i> L.	Benafsha	Violaceae	Herb	Flower	Coloractal cancer	Via rectal	Juice

							routes	
41	<i>ZiziphusjujubaL.</i>	sanjalli	Rhamnaceae	Tree	Fruits	Hyperglycemia, stomachache	Orally	Decoction
42	<i>ZanthoxylumaramatumD C.</i>	Timbar	Rutaceae	Shrub	Leaves and seeds	Vomiting, Nausea and stomachache.	Orally	Juice and powder

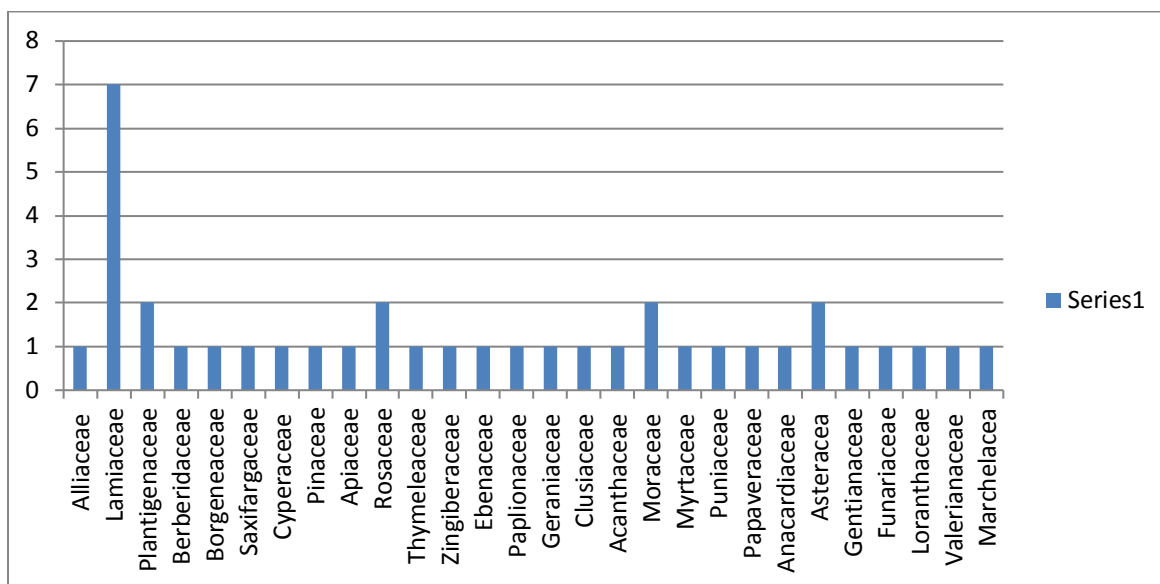


Fig-1: Ethno-Medicinal Families recorded from the study area

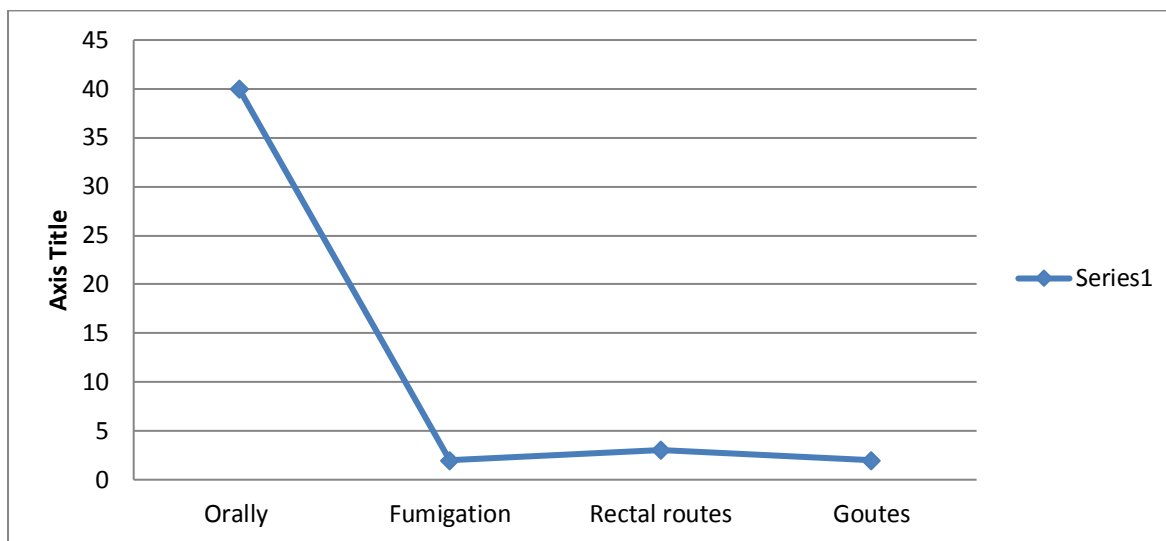


Fig-2: Mode of Administration

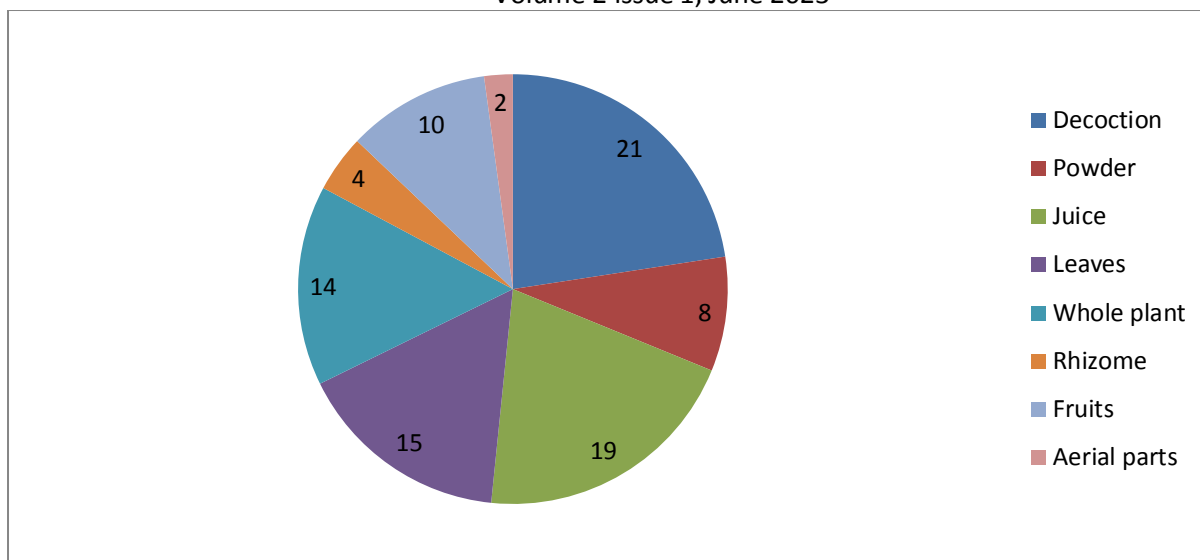


Fig-3: Method and parts of plants used as folk medicines



Fig-4: Habit-wise classification of medicinal flora of Balakot

The plants shown in **Table-1** were found to be commonly used in the treatment of a variety of respiratory and gastrointestinal disorders during the survey. Lamiaceae was represented by 7 species followed by Asteraceae, Plantaginaceae, Rosaceae and Moraceae as 2 species each and all the remaining 28 Families has one. All these herbal medicines belong to 27 herbaceous ground flora, 8 shrubs and 7 trees. The scientific names of the reported plants species along with their families, parts used, local names, mode of administration and a brief preparation, and disorders treated are given in **Table-1**. The roots and leaves of 29 plant species each were the most commonly used parts, followed by fruits of 10 plants species,

Rhizomes of 4 plants species, seeds of 2 plants species and aerial parts of 2 plants species. Also buds, resins, gums and bark of some plants species was found in use in a few preparations. Most of the plants are taken orally. Decoction and juice were found to be the two most popular forms of medicine preparation as represented by **Figure-3**. Decoction, juice and infusion were usually prepared from the freshly harvested plant parts whereas the powder forms were kept for longer period of time for future use. Gastric acidity, epigastric pain, peptic ulcers, chronic cough, oral thrush, piles, allergies, diarrhea, indigestion, heart burn, asthma, constipation, influenza and pneumonia were recorded as the most commonly encountered respiratory and digestive disorders. The interviewed groups used same formulation for the treatment of a particular digestive or respiratory illness. For example, *Amaranthus viridis*, the dried and powdered form of this plant is mixed with water and taken orally as laxative as well as for acute inflammation of respiratory ducts. Juice of *Ajuga bracteosa* used to reduce heart burn, indigestion and asthma. The leaves infusion of *Bergenia ciliata* used to cure epigastric pain, fever and diarrhoea. The people of Hangrai and Balakot used fruits of *Duchesnea indica* for intestinal obstruction, gastritis and lung infection. *Zanthoxylum aramatum*, *Ziziphus jujuba*, *Viola tricolor* and *Viscum album* are used for the treatment of digestive problems viz nausea, vomiting, epigastric pain, hyperglycemia, and aphthous ulcers. Few plants are also used for respiratory illnesses like *Valeriana jatamansi* for pneumonia and *Thymus linearis* for curing bronchitis and asthma. In this study area *Berberis lyceum* is used for oral thrush, cancer, *icromeria biflora* for cough, *Mentha longifolia* for indigestion, nausea, vomiting, pulmonary edema, *Pistacia integerrima* for constipation, asthma, cough, epigastric pain and *Ziziphus jujube* for hyperglycemia and epigastric pain. Medicinal plants species with most fidelity level were *Morus nigra* (96.53). Some medicinal plants species with most used value *Thymus richardi* (0.99).

Phytotherapy for the treatment of respiratory diseases relies primarily on the leaves, seed, rhizomes and whole plants. For the other parts of the plants the number of citations is much lower. The most frequently used plant part was the leaves. This is because it is the site of manufacture and storage of many chemical compounds through photosynthesis including alkaloids, tannins, coumarone, flavonoids, essential oils and insulin, which are active components of most herbal preparations in high concentration. These components have been reported to give relief to patients suffering from respiratory and digestive diseases. (12,14). Other important plant parts used are fruits, flowers and seed.

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