



RESEARCH PAPER

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Exploration of near-extinct folk wisdom on medicinally important plants from Shinaki Valley Hunza, Pakistan

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Abstract

Study explores near extinct Ethnobotanical wisdom on medicinally important plants from Shinaki Valley of Hunza. Research attempted to save and surface rapidly dying healing and treatment practices alongwith the gradually perishing floral wealth from the area. A total of 108 phanerogamic species belonging to 37 families were recorded. Indigenous communities use 38 species (35.18%) for medicinal purposes including abdominal pain, jaundice, flu, cough, dandruff, asthma, bone fracture, blood pressure, rheumatism, diabetes, cancer and cardiac anomalies. Based on the frequency and scope of utilization *Berberis lycium* stood 1st followed by *Artemisia maritima* 2nd and *Linum usitatissimum* 3rd. At present only 1.4% population practice folk medication compared to 80% in 1950s. Several adverse causes have left many important plant species under severe pressure. Under such visible and invisible hostile pressures, Ethnobotanical knowledge and indigenous wild and cultivated medicinally important floral species are perishing concurrently. Distilled folk insights documented can help pharmacognosy and innovation into existing medication for several ailments. Conservation of threatened species is an exigent need to prevent extinction of several species.

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Introduction

Shinaki Valley stretches over 43 sq. kms comprising upon five major villages having a total population of 7500 (GOP, 1999). Human settlement history does not speak beyond 600-700 years but archeological remnants found in the area are several thousand years. Area falls in between 36° 15' N to 36° 17'N (latitude) and 74° 22' to 74° 36' E (longitude) at an elevation of 4000-14700 feet from mean sea level.

Climatically, area falls within the dry temperature zone in the lower limits and ascends to alpine zone in the upper reaches (Ahmad *et al.* 2009). Valley alongside of Hunza River is part of Karakoram Range providing niche for at least 70% of the medicinal plants and wild animals upon which 70-80% population depends for health care (Pie and Manandhar 1987). Mild summer alternates with chilling winter (Hussain and Mustafa 1995).

Rampant commercialization and opening of Karakoram Highway have multiplied pressure on natural resources particularly medicinal plants (Hamayauon 2005). Area is less explored and is rich in plant and cultural diversity (Qureshi *et al.*, 2001, 2006). Local communities use medicinal plants as timber, firewood, medicine, fodder, food, fencing, dining utensils and even musical instruments (Khan and Khatoon 2007). Present study has attempted to document-up the Ethnobotanical knowledge from the Shinaki Area (the Lower Hunza). Out of 108 medicinal and non medicinal species investigated (Fig. 1 and table), 38 found medicinal (table).

Materials and methods

Specimen Collection

Study was carried out during 2011-2012. Plant collection was made during flowering and fruiting seasons i.e. early March and early September. Identification was made by comparing with herbarium specimen and with the help of the Flora of Pakistan (Nasir 1971, 1972, 1975; Stewart 1972, 1982; Jafri 1973, 1975, 1983; Ali 1977, 2001; Grohmann 1974; Siddiqi 1977; Hedge 1990; Nasir and Nasir 1987; Akhter 1986). Specimens were deposited at Department of Biological Sciences, Karakoram International University, Gilgit for record.

Data collection

Following a sonw-ball survey technique, Ethnobotanical data was gathered using a structured instrument supplemented by indepth semi-structured interviews from 200 community elders of age 60 and above. 24 (12%) respondents were local tabibs [hakims] whereas rests of them were experienced or famlier with folk medication. Quantitative and qualitative aspects of each medicinal plant were equally entertained in length to ensure documentation of maximum, accurate, practical and proven experiences. MS Excel tools were used for data processing and analysis.

Results and discussion

A total of 108 species belonging to 37 families were documented. 38 species belonging to 26 (35.18%) families were found medicinal (fig. 5). Among these *Berberis lycium* stood 1st for utility frequency and scope, *Artemisia maritima* 2nd and *Linum usitatissimum* 3rd. Other species fall at different levels.

Table 1. Traditional Use of Medicinal Plants.

S. No	Botanical Name	Family	Local Name	Part Used and Traditional Use
1	<i>Allium cepa</i> L.	Alliaceae	Ghashoo	Poultice, heated bulbet layers are applied on the boils to divulge.
2	<i>Allium sativum</i> L.	Alliaceae	Bukpa	Uncooked fresh bulbets are recommended for blood pressure patients, reduction of extra fats, anti-ascaris and asthmatic patients.
3	<i>Pistacia mutica</i> Fisch. & Mey.	Anacardiaceae	Daraaw	Oil extracted from dried heated branches are used as anti spasmodic.
4	<i>Berberis lycium</i> Royle	Berberidaceae	Ishkeen	Decoction or the boiled water of roots is recommended for rheumatism, diabetes and fractured bone healing.
5	<i>Cannabis sativa</i> L.	Cannabinaceae	Thoonch	Roasted seeds are expectorant and effective for throat sour and irritation.
6	<i>Capparis spinosa</i> L.	Capparidaceae	Chopir	Seed oil used in backache, schatica, rheumatism and anti-dandruff.
7	<i>Chenopodium album</i> L.	Chenopodiaceae	Kunoaw	Cooked plant shoots are used for constipation relieve.
8	<i>Artemisia maritima</i> Linn.	Compositae	Zoon	Fresh soft shoots used in anthelmintic, stomachache, fever, as antiseptic, asthmatic relief, as disinfectant and insecticidal.
9	<i>Carthamus tinctorius</i> L.	Compositae	Poong	Flowers and seeds are used in Pneumonia, Jaundice, Backache, Cough and healing of Internal Injuries.
10	<i>Cichorium intybus</i> L.	Compositae	Qarali Chicknachi	Plant is used as salad in anti-jaundice.
11	<i>Taraxacum officinale</i> Webber	Compositae	Doduli, Mamo Shikinachi	Latex or decoction of this plant is used for pimples.
12	<i>Citrullus vulgaris</i> Schrad.	Cucurbitaceae	Bu'war	Ripened fruit juice used as anti-helminthes especially for tapeworm expulsion.
13	<i>Elaeagnus angustifolia</i> L.	Elaeagnaceae	Ghundair	Fruit used in sour throat, throat irritation and gum in asthma.
14	<i>Hippophae rhamnoides</i> L.	Elaeagnaceae	Chanso	Dried ripen fruits are used in cardiac sufferings.
15	<i>Ephedra gerardiana</i> Wall ex Stapf	Ephedraceae	Sopat	Boiled stocks used for dehealing of inappropriately healed bones and rheumatic relieve.
16	<i>Juglans regia</i> L.	Julgandaceae	Aachhow	Kernels are used improvement of physical weakness.
17	<i>Mentha spicata</i> L.	Labiatae	Podina	Green tea used in fever and cold.
18	<i>Mentha sylvestris</i> L. Syn. <i>Mentha longifolia</i> (L.) Huds. Fl. Angl.	Labiatae	Bundoo	Used in fever, dysentery, temperature and abdominal pain.
19	<i>Thymus serpyllum</i> L.	Labiatae	Tumuro	Green tea used in stomachic and fever.
20	<i>Linum usitatissimum</i> L.	Linaceae	Human	Oil-saturated flour is used for internal injuries, organ displacements, backache, pimples (boils) divulgence, aphrodisiac and increase blood circulation.
21	<i>Ficus carica</i> L.	Moraceae	Faak	Fruit flour is used in asthma, Pustules/ Blister; Latex for wounds and injuries' healing.
22	<i>Morus alba</i> L.	Moraceae	Bidna/shaye Marouch	Soaked fruit extract through distillation is used in Jaundice.
23	<i>Morus nigra</i>	Moraceae	Kini Maroch	Soaked fruit extract through distillation is used in Jaundice.
24	<i>Papaver somniferum</i> L.	Papaveraceae	Mardakhaw	Latex used as analgesic.
25	<i>Plantago major</i> L.	Plantaginaceae	Shiltive	Decoction and soup is very efficacious in cold.
26	<i>Zea mays</i> L.	Poaceae	Makayee	Recommended in jaundice.
27	<i>Fagopyrum</i>	Polygonaceae	Baraw	Used in gastro-Intestinal disorders and cancerous

	<i>esculentum</i> Moench	ae		condition.
28	<i>Punica granatum</i> L.	Punicaceae	Danu	Dried (layer) fruit powder used in cough, asthma and unripe fruits in jaundice.
29	<i>Prunus armeniaca</i> L.	Rosaceae	Jui	Kernel oil used for stomach disorders, wounds' healing, bleeding chek and gum in heart burning.
30	<i>Populus alba</i> L.	Salicaceae	Turaq	Usage is almost same to the <i>P. nigra</i> L.
31	<i>Populus nigra</i> L.	Salicaceae	Jerpa	Soaked leaves extract is used to controle blood pressure.
32	<i>Bergenia stracheyi</i> (H. &T.) Engl.	Saxifragaceae	Sasper	Roots miswak is used for toothache.
33	<i>Datura stramonium</i> L.	Solanaceae	Dhatura	Boiled seed water is recommended in constipation.
34	<i>Coriandrum sativum</i> L.	Umbelliferaceae	Naski	Used in, headache, cold, temperature, flu.
35	<i>Daucus carota</i> L. var. A (white)	Umbelliferaceae	Phopuce/Jangli/Jut Ghachoon	Releives in discontinuation in urination.
36	<i>Viola serpens</i> Wall. ex Roxb.	Violaceae	Lillo	Used in cold, cough and flu.
37	<i>Peganum harmala</i> L.	Zygophyllaceae	Supandour	Used for abdominal pain, eye irritation and red eye.
38	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Huk-gu-Kurice	Fruit flour used on pimples.

Contrary to the 80% dependency in late 50s (Hocking 1958) only 1.4% of people (shepherds, Tabibs and elders) depend on folk medication at present (fig. 2). In the overall investigation, Angiosperms contributed 89%, Gymnosperms 5%, Fungi 3% and Lichens 3% (fig. 3). Following are Ethnobotanical details documented against each plant species;



Fig. 1. Medicinal and Non Medicinal Species.

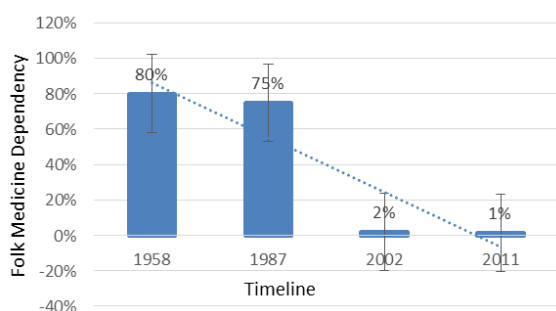


Fig. 2. Folk Medicine Declining Linear Trend.

In the study area most of the people depend on agriculture, agroforestry and mountain resources. Present investigation reveals 38 plant species belonging to 26 families to be part of folk medicine in the area (fig 1). Rapid adoption and inclination towards allopathic medicines have replaced folk medication and has become almost extinct (fig. 2). Such a loss may not be repairable nor could be constructed with few years. Khan and Khatoon (2007) reported the same phenomenon from Haramosh and Bagurot Valleys in Gilgit-Baltistan. Like other parts of Gilgit-Baltistan (Rasool 1998) *Artemisia maritima* is used for stomachic, tonic and anthelmintic conditions. Contrary (Rasool 1998) to the rest of Gilgit-Baltistan, *Berberis lycium* is used for internal bone fracture healing. *Cannabis sativa* is used in throat ailments however, Hussain *et al.* (1995) reported to use as

sedative in Dabargai Hills, Swat. *Hippophae rhamnoides subsp. turkistanica* is used for heart diseases, Kazmi and Siddiqui (1953) reported that decoction of berries is used for cutaneous eruptions and also the juice is given to lungs complains in Astore and Gurraiz Valleys. *Elaeagnus angustifolia* berries and bark gum are used for throat irritation and asthma respectively; however, Yang (1988) reported that Vigorous women use gum to wash their hair. Baquar (1989) reported that seed oil is used in catarrhal and bronchial infections. Hussain *et al.* (1995) reported that whole plant is used in hedge / fence making, while fruits are edible in Swat. *Ephedra Gerardiana* is uniquely used for de-healing of inappropriately healed bone fractures and rheumatism whereas Kazmi and Siddiqui (1953) reported that it is used for rheumatism, wild purgative, astringent and in infection of the respiratory passages in Astore Valley. Ignorance level towards indigenous medicinal plants and practices increases rapidly in the area and as such there is no conservation efforts are made to save important medicinal plant species and folk wisdom from extinction.

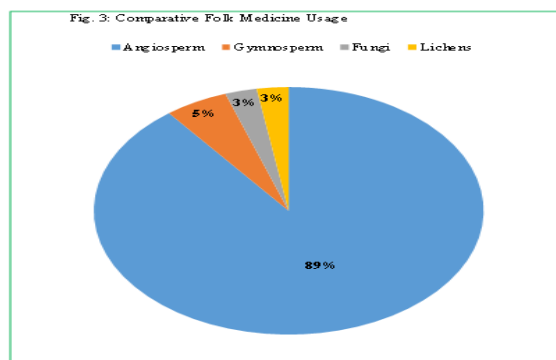


Fig. 3. Comparative Folk Medicine Usage.

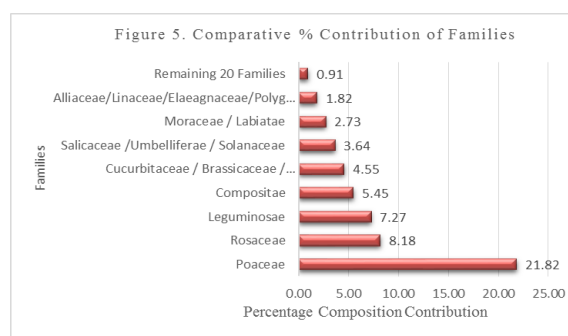


Fig. 4. Comparative % Contribution of Families.

Conclusions

Area has remained in isolation for centuries nurturing ethnobotanical wisdom but due to globalized commercialization and rampant developmental changes, folk wisdom has got no place before modern approaches and trends and lead to depletion. Since 1970s drastic decline is observed and in 2011-2012 only 1.4% population looks for folk medication, remaining 98% populace has forgotten their folk wisdom. Keeping in view the ground reality, loss of such a wealth will be irreparable; therefore this is important to investigate in detail before it is perished for ever.

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