

Traditional knowledge and its importance in biodiversity conservation

S. Aneel Gilani¹ Dr. Rizwana Aleem Qureshi¹ & Dr. Rashid Awan²

¹Department Of Plant Sciences, Quaid-I-Azam University Islamabad, Pakistan.

² Pakistan Museum of Natural History, Islamabad Pakistan

Abstract

This paper is based on the results of an ethno botanical research project conducted in Moist temperate forest of the Northern Pakistan with special reference to Ayubia National Park. It lies between 34-38 North latitude and 73-22.8 to 73-27.1 East longitude, over an area of 3312 hectares. The people and plants have a strong interrelationship as they depend upon plants for their various needs. The people of the area are using the plants for their food, medicines and other domestic purposes. A total of 11 important plants belonging to 10 Families were recorded which were used traditionally by the local inhabitants for food, medicines or other purposes. Local market was surveyed for the market survey of the important ethnomedicinal plants along with the school surveys to find out the relationship between the students and the plants. About more than 100 informants were interviewed in this regard. The precious ethno botanical knowledge is disappearing very fast, so this study could be helpful in conserving the biodiversity and the precious knowledge. *Podophyllum emodi* Wall. ex Royle and *Viola canescens* Wall. ex Roxb. are found vulnerable to harvesting.

Introduction

Objectives

- To document the traditional uses of plants species; economic, medical, aesthetic, recreational, scientific or ecological value and investigate how people are directly or indirectly dependent on these plant resources.
- To conduct a market survey on medicinal plants to assess the trade of the medicinal plants and find out the conservation status of important plant species.
- To conduct school surveys and find out the relationship of the new generation about the importance of plants and create awareness among them about the importance of plant biodiversity. **Biodiversity**

Conservation

To conserve the biodiversity is actually to conserve a species. All species continually interact with each other, forming web of life in which survival of each is dependant upon the presence of others. We have endangered species at risk and more and more species are becoming endangered day by day due to over exploitation and over harvesting for different needs. The living resources directly provide many necessities like food, fibre, medicines, spices, dyes and perfumes, etc. Some of the benefits are indirect in the form of ecosystem services, i.e. clean air, drinking water, pollination of crops, recycling of nutrients.

Introduction to the Area:

The investigated area Ayubia National Park lies in the moist temperate forest region in Northern Pakistan. It lies between 34°-38° north and 73-22.8° to 73-27.1° east, over an area of 1684 hectares. The area has been expanded through northern extension in 1998 to make a total of 3312 hectares. The people and plants have a strong interrelationship as they depend upon plants for their various needs.

The area is under severe threat for fuel wood and fodder collection by the local people. Firewood is mostly collected from the park and although deadwood is preferred, many live branches are cut and some young trees felled (Ayaz, 1998). There are several important medicinal plants e.g. *Paeonia emodi*, *Podophyllum emodi* Wall. ex Royle and *Valeriana jatamansii* Jones (*V. wallichii* DC.) which are restricted to the park. (Aumeeruddy, 1998).

The valuable ethno botanical knowledge, which was transmitted orally from generation to generation, was a source of strong linkage between people and plants. Such relationship intern helped in sustainable use of plant resources by the communities. As we know that the true essence of ethnobotany is that it is the study of relationship between people and plants, especially the utilization of plants by the people. (Martin G. J. 1995:23-29).

The field of Ethnobotany in Pakistan is now not that virgin as it was in early 90's. A lot of papers have been published and more work has to be done in the future. (Shinwari & Khan, 2000:45-56) described 50 species of herbs belonging to 27 families from Margala Hills National Park, Islamabad Pakistan, as used medicinally by the local inhabitants of the park, among which ten species are being sold in the local market. *Asparagus adscendens* Roxb, and *Viola canescens* Wall. ex Roxb. Are found vulnerable to harvesting. (Bukhari 1994:61-65) worked on Ethnobotany and vegetation analysis of Machyara National Park Muzafarabad AJK, he reported 10 plant communities in different regions of the National Park; he discussed the status of the plant species in the park and also reported the detail of the medicinal plants in the park. (Zandial 1994) worked on the Ethnobotany of the National Park Machyara, AJK, Pakistan, he reported 104 important species of plants including tree, shrub and herb species used ethno botanically by the local people.

Medicinal plants used by the local people ethno botanically are of great importance that is the reason a lot of people are engaged in the trade of important medicinal herbs, shrubs and tree species in and out side the country. (Elisabetsky 1990:313-320) reported that annual world market value for medicines derived from medicinal plants by indigenous people is US \$ 43 billion.

Material and Methods

Before starting the research work on traditional use of ethnomedicinal herbs of Ayubia National Park the general information about the area was collected. Maps were obtained from forest department Abbottabad and Dungalali. About 10 villages around the park were studied and Interviews of more than 200 local informants were made including Hakims (Herbal healer) and Pansaris (Grosser). Questionnaires were made for the interviews of the people which included the information about the informants, the plant used by them, for what purpose the plant is used, in what quantity and how the plant is used. Questionnaires were developed for the school and the market surveys for the traditional uses of the medicinal plants along with their harvesting and marketing.

Results

Althea rosea L.

Family: Malvaceae

Part used: R

The root is cut into smaller pieces and put in water and left overnight. Next day the water become thick and the material is medicinal and is edible and is very useful in jaundice. The root of the plant is used in jaundice, stomach, urinary ulcers and in liver disorders.

Bergenia ciliata (Haw.) Sternb.

Family: Saxifragaceae

Part used: Rh and L

The rhizome of the plant is crushed in powder form and is mixed in milk (pure milk) and is added with sugar, and then it is cooked till thickening and is eaten as sweet and also medicinal. The rhizome is crushed and used in all kinds of ulcers mainly stomach and duodenal and also in internal infections. It is also anticancerous in action.

Berberis lycium Royle

Family: Berberidaceae

Part used: R.L

The dried bark of the root is crushed into powder and is mixed with pure milk in 3:1 (Milk: Dried powder of the root bark) ratio. It is then added with sugar to taste and is cooked till hardening locally called (Halwa). It is eaten in small quantity daily in the morning. It is very effective in muscular and other internal pains and acts as tonic.

Cannabis sativa L.

Family: Cannabinaceae

Part used: L

The leaves are crushed in water and the decoction is used as stimulant and is sedative. It is locally called Sardai/sawi.

Fragaria nubicola Lindl.

Family: Rosaceae

Part used: Fr and L

The leaves and fruit are mixed with the leaves of *Berberis lycium* and are cooked in milk and are used in cure of stomach ulcers, also used as antiseptic. The fruit of the *Fragaria* is edible.

Geranium wallichianum D. Don

Family: Geraniaceae

Part used: R

The root is dried and is crushed then it is mixed with milk and sugar and is cooked till thickening and is very delicious in taste and is used as medicine in backache, gout and also used in strengthening of the body muscles and bones. The colour of the root is red and that's why locally called ratanjot (red root plant).

Indigofera heterantha Wall.

Family: Leguminosae

Part used: L.W

Leaves are crushed and the extract is used in the internal body disorders. The flowers and the leaves are also used in dying industry. It gives purplish colour.

Bistorta amplexicaule D. Don

Family: Polygonaceae

Part used: R.L

The root is used dried or fresh in water it is boiled and the decoction is taken as herbal tea, which is also very effective in cold, fever and diarrhea.

***Podophyllum emodi* Wall. Ex Royle**

Family: Berberidaceae

Part used: Fr

Fruit is edible. It is green when young but grows red on ripening and is edible when red, mostly eaten by local people and is reported to be used in liver disorders as tonic.

***Paeonia emodi* Wall.**

Family: Paeoniaceae

Part used: R

The root is crushed and is mixed with dried roots of *Geranium wallichianum*, milk is added 3:1 (milk: Dried powder) cooked and a paste is made. It is stored in a glass jar and is eaten as sweet and is also used in backache and internal body pains. It is very effective remedy for the backache.

***Viola canescens* Wall ex Roxb.**

Family: Violaceae

Part used: W.P

Flowers and leaves are boiled in water and the decoction is made which is used in cough, cold, fever and jaundice.

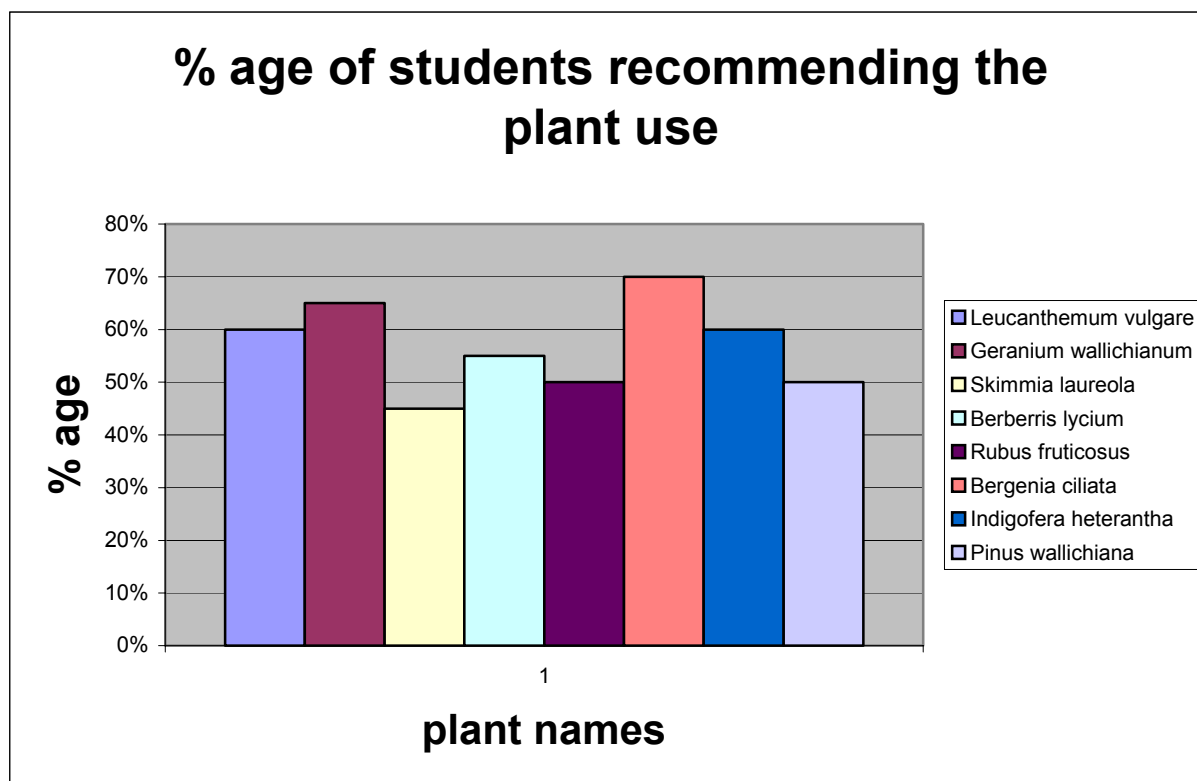
Marketable Medicinal Plants & Mushrooms

A survey was conducted in the local market to find out the threats to the medicinal plants, which are harvested and overexploited heavily for export in the cities and the international market.

Plants including *Geranium wallichianum*, *Berberis lycium*, *Bergenia ciliata*, *Podophyllum emodi*, *Morchella esculanta* etc. are mostly collected and being sold in the local market from where it is exported. The price of purchase of the plant from the local collector is very low and price of sale in the National and International Market is very high, e.g. *Morchella esculanta* is purchased from the local collector at Rs. 500-1000 per Kg. and it is sold in the National Market at Rs. 3000-5000 per Kg.

School Survey

Survey was conducted in different schools in the park area and students were asked about the usage of plants whether as medicines, as food or other domestic purposes. Questionnaire was developed and information about the plant was collected. The students were asked to write the information about the plant used by themselves and also from their elders. Students took keen interest in this survey and the response was very good



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