

OCCURRENCE OF SEABUCKTHORN (*HIPPOPHAE RHAMNOIDES* L. SUBSP. *TURKESTANICA* ROUSI) IN PAKISTAN

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Abstract

Seabuckthorn (*Hippophae rhamnoides* L.) is a multi-purpose shrub grows abundantly in northern Pakistan. Fruit is a rich source of vitamins and oil. Oil is used for a variety of products in various industries such as cosmetics and pharmaceutical. Suggestions have been made and strategy discussed for its sustainable management for future exploitation.

Introduction

Seabuckthorn (*Hippophae rhamnoides* L. subsp. *turkestanica* Rousi.) is commonly known as Mirghiz (Chitrali), Chuk (Hazara), Tarwa (Swat), Neichak and Kando (Punjab) and Baru (Balti). Its english names are Seabuckthorn and Shallow-thorn, is a shrub or small tree native to temperate regions of the world. Two species occur in Indo-Pak sub-continent *Hippophae rhamnoides* and *H. salicifolia*. The former species is an evergreen and abundantly found in northern parts of Pakistan, while the later is rare. It is a pioneer plant species for landslides and improves soil fertility by fixing atmospheric nitrogen. Fruits are the cheapest and abundant source of vitamin C and high quality oil. The plant has been harnessed in China to produce more than 200 industrial products which includes wine, soft-drinks, fruit products, medicines, cosmetics and for the control of soil erosion in fragile mountainous land (Rongsen, 1992).

Distribution

Seabuckthorn is a medium sized, fairly fast growing, multipurpose small tree which grows naturally in the drier inner valleys on river bank

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and in mixed thickets along the stream, on sun facing slopes at 2,000 to 3,800 m elevation in Chitral, Swat, Gilgit, Astore, Baltistan, Kashmir, Kurram Agency etc. Beside this, the species is also found in Europe, Central Asia including Tajzikistan, Afghanistan, Mongolia, China and Tibet (Nasir, 1975; Stewart, 1972).

Habitat and ecology

It is a light demanding shrub, grows in association with other vegetation like *Populus ciliata* (Palach), *Salix* sp. (Baid) and *Berberis* sp (Sumbal). It grows on a variety of deep and sandy-loam soils, formed from different parent materials chiefly on moist, gravelly stream-beds along the river banks and irrigation channels. It prefers northern exposures and is adapted to a precipitation of 100 to 200 mm/yr, cold temperate climate and a temperature range of -10 to 30° C. It can be propagated either from seed, root and stem and root-shoot cuttings. Flower and fruit appear in April-May and September-October (Butcher, 1961; Parker, 1926).

It is easy to regenerate and start producing fruit at the age of 3-5 years. Seed remains viable for more than one year and can be stored for couple of years if fruit pulp is removed with running water, later dried under partial shade and packed in gunny bags for storage. For raising nursery, seeds can be sown in well prepared raised beds in May with or without seed pre-treatment (soaking in normal water for 2-4 hours). Seeds germinates within about one week. One year old seedlings can be transplanted in the field and the plants start fruiting after 3-4 years growth.

Survey work

Survey of this species was conducted by Medicinal Plant Branch, Pakistan Forest Institute, Peshawar during the months of July-October, 1995 and June-July and October 1996 to determine its potential, status and availability in northern Pakistan. The area visited were Begusht, Chunarkan, Madaklash and Bomburet valleys in Chitral and Astore and Shigar and Khaplu valleys of Baltistan in Northern Areas. The plants were found growing abundantly on thousand of hectare in these valleys.

According to conservative estimates about 600 to 1,000 tonnes of fresh fruit can be collected in a season from above mentioned area. Only a small quantity of the ripened berries is currently eaten and used in traditional medicine as decoction for chest complaints while a large portion of fruit goes waste annually due to its non-exploitation.

Constraints in exploitation

1. Lack of information on the distribution, and quantity of fruit produced during growing season in Hindukush-Himalayan region has resulted in the neglect of this important medicinal plant species and thus its exploitation possibilities have been limited to its ethnobotanical uses.
2. Local people do not know the value of this important drug plant. They usually plant it for hedge, fodder and fuel along the boarder of cultivated fields.

Traditional uses

1. Folk-medicine

A syrup is prepared from sour fruit which is relished by the local people in many parts of the Hindukush and Himalayan regions to be a valuable remedy for lung and stomach complaints. In India fruit decoction is used for the treatment of blood pressure and indigestion (Singh and Dogra, 1996), while in Tibet fruit juice is used as a fixative for dyed clothes as well a useful tonic. Fruits are also used as a basic constituent of TB medicament consisting of several herbs (Pohle, 1990). This species is used in China for oil extraction that is used to cure cancer.

2. Food

Berries are eaten by the locals, while in China, large quantities of berries are utilized in the preparation of preserves, jams and soft-drink. The fruit flesh is also an important raw material for pharmaceutical and cosmetic industries (Anon, 1959).

3. Fuel-wood/fodder

The branches are lopped by the farmers in the month of April and September/October and later stacked along the boundary of cultivated fields to protect them from livestock. It is a good fodder and also used as fuelwood for making charcoal.

Suggestions

- A detailed survey alongwith chemical analysis of the Seabuckthorn fruit may be conducted to assess the present status and to identify the region of abundant availability. This survey is essential to formulate a judicious action plan for its conservation and utilization.
- A small pharmaceutical unit if stablished in the area for the sustainable utilization of this species alongwith other unexploited drug plants will play an important role in uplift of the socio-economic conditions of the people.

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