

# Grow *Seabuckthorn* (A Wonder Medicinal Plant)

## For Greening Cold Desert Himalayas

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**T**here is a Sanskrit proverb which says to that a hundred divine epochs would be insufficient to explain the virtues of the Himalayas.”

The Himalayas are the lofty mountains which constitute the source of gigantic rivers of India and other countries like Pakistan, Bangladesh, Afghanistan, Nepal, etc. They act as a barrier to check the moisture-laden winds to pass the subcontinent of India. The heavy rains that we have in certain parts of north-west Himalayas like Dharamshala area in Himachal, Dehradun/Mussoorie in Uttarakhand and Gul Gulabgarh/Bhaderwah in Jammu and Kashmir are due to the southwest monsoons which strike on them.

The Himalayas are the highest but the youngest mountains of the world, sprawling over an area of about one million km<sup>2</sup>. In India, these mountain ranges stretch to a length of over 3500 km while the width varies from 250 to 350 km or so. The mountain ranges of the Himalayas run parallel to one another, and have been designated as the Outer or Siwalik Himalayas, the Lesser or Intermediate Himalayas,

the Greater Himalayas and the Trans Himalayas. The Outer Himalayas (with the exception of Kandi belt) and the Lesser Himalayas are very fertile which support the largest species of tropical and subtropical forests. On the other hand, the Great Himalayas and the Trans-Himalayas are devoid of good flora and fauna, and are mostly barren. The Trans-Himalayas are also known as “Cold Deserts of Himalayas”.

Leh and Kargil districts of Ladakh region, and parts of Kishtwar district closely adjoining to the Leh district belonging to Jammu and Kashmir vis-à-vis Lahaul-Spiti and Kinnaur districts of Himachal Pradesh constitute the “Cold Desert Himalayas” of India. Such tracts of wastelands have been lying unutilized since time immemorial. However, nowadays, these lands have been taken to make them regenerative, productive or worthy of exploitation through growing of poplars, cash crops like hops, seed potatoes and unseasonal vegetables as well as growing of a shrub like “*seabuckthorn*”.

In this paper, however, the role of “*seabuckthorn*” in greening the Cold

Deserts of Himalayas in terms of its various uses like medicinal values, nutritional/food values and controlling soil erosion / landslides has been detailed. A brief history of the *seabuckthorn* has also been described.

### Brief History

*Seabuckthorn* (*Hippophae rhamnoides* L.), a member of the Elaeagnaceae family, is a thorny deciduous bush. The genus *Hippophae* has been derived from the Greek word as in Greece, addition of *seabuckthorn*'s leaves/twigs in fodder resulted in weight gain and shiny coats for horse. Thus, this gave the name to the bush *Hippophae* as in Latin “Hippo” means horse and “Phaes” means shine.

Historically, this bush has been grown and used for more than 1300 years traditionally in Tibetan, Chinese and Mongolian systems of medicines. But according to the “scientists of Himachal Pradesh who are very hopeful about this wonder plant, are of the opinion that the *seabuckthorn* plant was present in Lahaul-Spiti much earlier than in China where people have made full use of this plant for a variety of things, i.e. as a fuel, fodder, fruit, oil and medicine.” “This wonder plant

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is likely to regreen the Cold Deserts of India and the Great Himalayas, they further said.”

This plant also grows naturally in many temperate cold countries like Russia, Britain, France, Germany, Finland, Romania, Nepal and Pakistan. In India, seabuckthorn locally known as “Tsermang” is mostly grown naturally in the cold arid region of Ladakh (Jammu and Kashmir), Lahaul and Spiti, Kinnaur and Pangi areas of Chamba (Himachal Pradesh), parts of Kumaon and Garhwal mountains (Uttarakhand) and certain areas of the North Eastern Hills. Though this plant is distributed over a large area naturally in Ladakh and Lahaul-Spiti yet it has unfortunately till the recent past escaped the attention of foresters, conservationists, planners and industrialists vis-à-vis great importance in soil conservation, flood controls, reforestation and medicinal use.

### Medicinal Values

Every part of the *seabuckthorn* plant, especially berries has some pharmacological effect on the lungs, the stomach, the spleen and the blood circulation. As per the historical background, the people of China were probably the first who began to use seabuckthorn as a drug. But now it has been established beyond doubt that this plant is capable of curing a number of human diseases.

Recent research on the medicinal uses of the *seabuckthorn* has shown that its various products have a definite and efficacious effects on blood pressure, respiratory infections, heart problems, gastric ulcers, cancers, burns, blood deficiency and some brain disorders. It has also been proved to possess good anti-inflammatory, anti-senility and anti-radiation properties probably because the bark of the stem and fruit contains 5 HT (5-hydroxy tryptamine), a rare occurrence in the plant kingdom. This compound can act as a neurotransmitter and is reported to control human emotions, hormone levels, neuro-endocrine disorders, age-related problems, loss of memory and inhibits cancer cell growth. The flavonoids present in berries have antioxidants and antiagent properties. Local doctors called “Amchis”, use it in the Tibetan system of medicine.

The *seabuckthorn* oil was regularly used by the former USSR cosmonauts as vitamin supplement during the 1960-1970s to protect them against radiations in space travels. It has also been used in the beauty creams because of its anti-wrinkle and anti-skin sclerosis properties. *Seabuckthorn* oil improves the micro circulations of capillary vessels, nourishes skin and hair, cures scabies and dry skins.

The *seabuckthorn* has many good products for children, lactating and expecting mothers vis-à-vis senior citizens, sportsmen and people living

and working at higher altitudes. “Leh Berry” in a tamperproof tetra pack is one of the examples which can be used by such kinds of mankind without any side effects for increased health, stamina and vigour. It is a natural energizer and enhances body endurance against scurvy and other diseases and vagaries of high altitude climate.

It is worth mentioning that even companies are marketing mixed juice of *Hippophae*, guava and mango. The people, particularly the young, should use this nutritious drink rather than fuzzy soft drinks devoid of nutrition.

### Nutritional Food Value

China has already recognized the *seabuckthorn* as foodstuff besides medicinal plants without having any toxicity and side-effects. The berries are a rich source of nutrients and biologically active substances. The berries contain aminoacids including essential ones, essential fatty acids and bioactive substances. Owing to a greater quantity of vitamin C, *seabuckthorn* is also called “King of Vitamin C”.

The oil of *seabuckthorn* has already been approved as “Green or Organic Food” in China. The vitamin C content ranged from 300-1600 mg 100 g-1, vitamin E – 162-255 mg 100 g-1, vitamin A – 11 mg 100 g-1, vitamin K – 100-200 mg 100 g-1 of the berries. Vitamin B1 and B2 are also present, though in small quantities.



In addition to various aminoacids and vitamins, high contents of *flavonoids*, plant sterols, more than 100 natural nutrients, carotenoids, oils, lipids and sugars are also present in the berries. The main minerals found in the berries are: Fe, Mn, Cu, Zn, Ca and Mg.

### Control of Soil Erosion

The *seabuckthorn* because of its nodulated fibrous and long and well developed root system of *Frankia* (a symbiotically associated *Actinomycetes*) is an excellent plant species for wasteland reclamation. As a matter of fact, the *Actinomycetes* although are unicellular like bacteria yet are called *Thread bacteria* owing to the occurrence of very thin/slender type of mycellium in their cells. Presence of such type of mycelia render these organisms more soil binding abilities or properties. And as such *seabuckthorn* has proved a boon to control soil erosion.

### Control of Landslides

Frequent occurrence of landslides in Kinnaur, Chamba and Lahaul-Spiti tribal districts of Himachal Pradesh is mainly attributed to climatological, geographical and geological conditions. Besides, denudation of hill slopes, loose and unconsolidated periglacial and glacial material constitute the majority of the

mountainous slopes in Himachal Pradesh. The situation is similar in the National Highway from Jammu to Srinagar and Srinagar to Leh as well as other parts of Jammu and Kashmir.

As a sequel, the slightest precipitation causes destabilization of this type of loose material which results in landslides not only in various areas of Himachal Pradesh but also in Jammu and Kashmir. To overcome this problem, *seabuckthorn* has been developed in the State of Himachal Pradesh by the scientists working in Yashwant Singh Parmar University of Horticulture and Forestry, Nauni, Solan. The shrub has been found very effective in controlling soil erosion and retaining surface runoff as well as checking landslides.

The study conducted by the scientists of the aforesaid university indicated that seabuckthorn can be grown at an elevation of 600 to 5200 m and withstand temperature ranging from 400 to 600 Celsius, and has been found quite effective in stabilizing the hill slopes which are susceptible to landslides. Other shrubs like *Berberis*, *Indigofera*, *Trifolium* have been found equally effective in stabilizing the hill slopes of the landslides.

### Other Uses

**Habitat for wildlife :** It plays a significant role in the conservation of wildlife by providing an excellent habitat for a number of wildlife species. A large number of bird species and small rodents are entirely dependent on *seabuckthorn* as a source for food, protection and shelter.

**Maintenance of soil fertility :** *Seabuckthorn* having a symbiotic nitrogen fixing nature, is also known to maintain the soil fertility through atmospheric nitrogen fixation. However, this aspect calls for much more investigation.

**Use as fuel and fodder :** *Seabuckthorn* plant can also be used as a fuel, fodder and plays an important role for greening the cold deserts. □

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