

# DHASINGRE

## *Gaultheria fragrantissima*

### 1. BIOLOGY

#### A. Taxonomy

Family - Ericaceae

English Name - Wintergreen

Local Name - Dhasingre, Dhasingare, Machino

A robust shrub with ovate to lanceolate evergreen leaves, and with numerous axillary spike-like clusters of small fragrant white or pink globular flowers. Flower clusters 2.5-8 cm long, shorter than leaves; flowers short-stalked; corolla 4 mm by 3 mm broad. Leaves acute, 5-10 cm long, smooth above, dotted with the bases of bristles beneath, margins bristly-toothed;



a branched shrub to 1-1.75 m. fruit 0.6 mm, with dark violet-blue fleshy pointed calyx-lobes.

#### B. Habitat and Range

This plant is native to North America and is found in woodland and exposed mountainous areas. It is distributed in Indian sub continent from South East Tibet to Burma ranging from 1500 to 2700. It is very commonly found as wild vegetation in Nepal in the same topographical range.

#### C. Ecology

Dhasingre is a fast growing, evergreen robust shrub which can grow in areas having rainfall up to 700-1000mm. It grows densely in the degraded, open and moist slopes, especially in newly cut slopes. Dhasingre can grow in forest and shrub-land, mostly in moist areas. Dhasingre is covered with fragrant white flowers blooming in the month of April- May. The leaves and fruit are gathered in summer.

## Regeneration

The plant has good natural regeneration capacity. The old plants, which are not harvested ever had slender branching, containing few leaves and the harvested plants attains spreading branches with more leaves. The roots have the unique physiological capacity to extract nutrients from the stony soil and water holding. The plant covers with fragrant white flowers blooming in the month of April- May.

## **2. RESOURCE MANAGEMENT**

### A. Management System

Dhasingre is mostly found in natural forests of mid hills (Bhocha, Lakuri, Thulopatal, Junghu, Jhakhu, Suri, Chankhu, Marbhu, and Bulungha VDCs) and some are collected from private lands, artificial regeneration (cultivation) is not started yet. People are well aware about the conservation of this species found in Community forests and private lands because of its utility. There is no management plan for development of Dhasingre. Immediate need of resource inventory of this species to make management plan according to sustainability principles.

### B. Harvesting

Harvesting of Dhasingre started after the 5-6 years of plantation, and sustain for many years. For harvesting, villagers cut the twigs with leaves of 5-6 yrs old plants with the help of knife. A child can harvest hardly 40 kg of fresh leaves and small twigs per day, but an adult is able to collect two times more. The local processors of Dolakha district give NRs 1 per kg of fresh leaves and small twigs to the harvesters. The leaves of 'Dhasingre' are harvested during the whole year.

### C. Sustainability Issues

Immature and over harvesting of Dhasingre followed in the studied area, which lead declination of existing natural resources of this species.

## **3. UTILIZATION**

### A. Subsistence Use

The people used this plant as an alternative source of fodder and cattle beds for dry season, since time immemorial. The ripen fleshy berries in dark violet-blue colour during the month of May-June are also eaten by the children.

## B. Commercial Use

The most useful and valuable part of the plant is leaves which are dark green in colour and yield 0.3 to 0.9 % of yellowish essential oil, the well known “wintergreen oil” in commerce.

The essential oil of this plant contains Methyl Salicylate 95-97 %, widely used in modern and Ayurvedic, medical science for the cosmetics products, flavours and medical preparations, including toothpaste to massage. Hence, it has a good commercial importance and value.

Wintergreen Oil: It is used as a flavoring agent in the confectionery industry and in the manufacture of soft drinks as well as in the pharmaceutical and perfumery industry. An oil of choice after strenuous physical activity or sports. Contains the active ingredient methyl Salicylate, similar to salicylic acid used in aspirin

## 4. **MARKETING**

### A. Production Volume and Trade

Dhasingre is predominantly found in the following VDCs of Dolakha District: Bocha, Gaurishankar, Lamabhagar, Orang, Chilankha, Khapachagu, Bhighu, Jiri, Shayama, Mali, Thulopatal, Laduk, Bulung, Lapilang, Lamidada, Sailungeshowr, Dhudhapokhari, Katakuti, Magapouwa, Bhusapheda, Dadakharka, Lakuridada, Khare, Junghu, Suri, Chankhu, Kalenchowk, Jhakhu, Marbhu, Kshamawoti, Jhaphe, Jhule, Gaurinudi, Mirghe, Khestrapa, Kabre, Pawati, Phasphu, Chayma, and Hawa VDCs.

Dhasingre can be harvested all round the year. About 2000-3000 Kg of raw Dhasingre is collected/household/season by Charnawati and Thanksa deurali CFUGs, about 500 kg by Lakuridada CFUGs and about 400- 500 Kg by Deuralipakha and Pandit CFUGs of Dolakha district. According to FECOFUN information 2, 00,000 Kg of raw Dhasingre produced and traded in the Dolakha district in 2001-2002.

### B. Current Market Channel

Mostly, villagers sell their raw product directly to local processors and local processors supplied processed wintergreen oil to HPPCL. Sometimes, villagers sell their products to local traders and local trader supplied raw products to local processors. Local processors sell their processed essential oil to HPPCL. HPPCL export the wintergreen oil to Indian and other abroad markets.

Collectors -> Processors -> exporters

Collectors -> Local Traders -> processors -> exporters

### C. Current Processing

Separate the larger branch from small branch with leaves and store in the cool dry storeroom. Drying process not needed in case of Dhasingre. Traditional steam distillation followed to extract the essential oils from the leafy portions. The processing steps of the production of Dhasingre (machino) oil are explained below:

#### **Maceration**

1. One person puts the fresh leaves of 'Dhasingre' in the upper part of the vessel, while other prepares the fire by putting the mark (wastage) of the previous distillation under the same vessel. The lower part of the vessel contains water that will be transformed into the steam.
2. The passage between the drum and the condensator has to be tight closed to maintain the water steam inside the drum. The hard leaves of 'Dhasingre' take about 2-3 hours to macerate.

#### **Distillation**

1. The skilled labour opens the passage between the vessel and the condensator to let the distillation process take place. The steam charged with essential oil is cooled in the condensator that contains a tube system where cold water flows.
2. The distillation process lasts 5-7 hours for 'Dhasingre' essential oils. The temperature of the tube connecting the second chamber and the condensator has to be steadily checked and the intensity of the fire maintained. The essential oil burns, if the temperature excess 100-degree Celsius.
3. The transformed steam into liquid flows from the condensator to a container or a separator. At the end of the process, the essential oil is separated from the water. Essential oils from 'Dhupi' and 'Sunpati' are lighter than water, while essential oil from 'Dhasingre' is heavier. The leaves are removed from the upper part of the drum and spread out to let them dry. They will feed the fire of the next distillation process.

### D. Variability and Risk

Limited market for wintergreen oils, only HPPCL buy wintergreen oils from the local processors. The fluctuation of market price of essential oil is one of the risky factors for the traders. Monopoly of Herbs Production and Production Company Ltd. (HPPCL) in price fixing process. Problems arise during transportation and storage process of wintergreen oil from local processing units to HPPCL. Local processors pay unnecessary taxes to different organization during trading of wintergreen oils.

## **5. SOCIO-ECONOMIC AND POLICY ISSUES**

A. Socioeconomic factors of existing activities

Dhasingre is one of the important sources of income for rural people. Mostly disadvantaged people and farmers with low land holdings are involved in collection and trade of Dhasingre. Mostly children, women and shepherds collect Dhasingre in their leisure time.

B. HMG Policy on Collection, Processing, and Trade

1. Current Policy

Collection permit is required before collection from DFO and CFUGs describing collection area, method of collection, quantity and objective of collection, but in practice, it is not followed. Collectors sell the product to village traders/local processors. Forest personnel have the power to conduct search, impound goods, undertake arrests, conduct investigations, and file cases.

2. Policy Constraints

Several unnecessary checkpoints from district up to the border are the main constraints, which are responsible for harassing the traders.

## **6. REFERENCES**

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