

Euonymus Tingens Wall (Celastraceae): A Future Plant with Highly Economic Value in Great Himalayan National Park, Kullu Himachal Pradesh

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Abstract: *Euonymus tingens* Wall is a temperate dendriform plant species, collected from Great Himalayan National Park, Kullu, Himachal Pradesh. It is found that this plant is related with the local people daily needs and now a day it is also demanded by the some industries. This plant is used by the local as timber, dye, fuel and fodder. So number of plant individuals decreases or there is decline in the populations of plant in the area.

Keywords: Great Himalayan National Park, temperate, Economic

I. INTRODUCTION

The Great Himalayan National Park (GHNP) is situated in Kullu district of Himachal Pradesh between 31°38'28" – 31°51'58" N latitude and 77°20'11" – 77°45'52" E longitude. The park includes two wild life sanctuaries i.e. Tirthan Wildlife Sanctuary, Sainj Wildlife Sanctuary and Eco-development zone combined called as Great Himalayan National Park Conservation Area (GHNPCA). The altitude of the area ranges from 1344 m to 6205 m sl. The plant studied *Euonymus tingens* found in both valleys i.e. Sainj Valley and Tirthan Valley of Great Himalayan National Park, Kullu, Himachal Pradesh. The park having 853 plant species, among these species there are a number of economic plants. These economic important plants are used as medicine, religious, fuel, food and fodder. *Euonymus tingens* Wall. is also an important plant which is reported from the Great Himalayan National Park during the field surveys in the National park under the project of National Mission of Himalayan Studies title as "Multidisciplinary studies in Floristic assessment, Ecological analysis, Ecosystem services, Conservation and Sustainable management of selected National Parks in Western Himalaya i.e. Great Himalayan National Park, Kullu, Himachal Pradesh and Valley of Flowers National Park, Chamoli, Uttarakhand". Previously various worker worked on the state and area such as J.D. Hooker(1872), Choudhery and Wadhwa(1984), Dhaliwal and Sharma (1999) and Singh & Rawat (2000). R.D. Gaur mentioned this plant in his paper in 1986.

II. MATERIAL AND METHODOLOGY

Two plant specimen sample of concerns plant is taken from the study area. The collected plant specimens were carefully dried, pressed and mounted as per the known herbarium practices given by Jain and Rao (1976). The specimen identified from the local herbaria DD and BSD.

2.1 Description

Euonymus tingens Wall.,; in Roxb., Fl. Ind. 2: 406 (1824); in Cat. 150, n. 4283 (1831). *Euonymus tingens* evergreen shrubs to small trees, height 2-8m; branches colour gray-brown, smooth, strong, twigs greenish, with bands. Leaves opposite, oval to lanceolate; 3.5 -6 × 1.5-3 cm, base cuneate or sub orbicular, margin crenulate, apex obtuse or acute; dark coriaceous or glossy green above, lateral veins 8-12 pairs. Flowers are borne in large number flowered clusters on stalks 1-2.5 cm long. Flower-stalks are 0.5-1.5 cm in length. Flowers are 5-merous, about 1.7 cm in diameter, sepals semicircular, petals ovate pale white with strong purplish veins around edges. Capsules are obovoid-spherical, 5-

angled, pinkish or reddish when fresh, brown or yellow-brown to red-brown when dry, 1-1.3 × 1-1.4 cm.

Flowering and Fruiting: August to December

Euonymus tingens is native of the Himalaya, it is found in India, China, Burma, in India it is found in the Himachal Pradesh and Uttarakhand.

2.2 Uses of *Euonymus tingens* Wall.

1. **Ethnomedicinal Uses:** From the gathered information *Euonymus tingens* Wall. is used as the medicinal plant the juice of plant is used for eyes trouble. The root paste applying on the forehead for headache. The root bark is used for the treatment of dyspepsia.
2. **Ethno religious Uses:** *Euonymus tingens* having its religious importance, the wood of the plant having yellow red colour that's why it is called as "Chandan". It is used in special occasion of religious ceremony and worship. Tikka is made by the wood and used in Devata Pooja and in the other function of Devata in the valley.
3. **Fodder Uses:** *Euonymus tingens* is used as the fodder for cattle and goats. The plant increases milk production of cattle.
4. **Fuel:** The plant is good source of fuel. Used by the local people of the area for fuel purposes.
5. **Dye:** This plant is dye yielding, yellow colour dye is extracted from the bark of the tree by drying and making the powder of the tree bark.
6. **Chemical Extraction:** A plant named as Tingenone (a cyclohexane) has been isolated from the *Euonymus tingens* (P.M. Brown *et.al.*, 1973).
7. **Furniture:** The height of tree is small in size, so large size furniture is not made up of the tree, only frames, small boxes, stands and wall selves are made with the hard wood of plant.

III. THREATS AND CONSERVATION

The distribution of *Euonymus tingens* Wall is in the Western Himalaya in the state Himachal Pradesh and Uttarakhand at the altitude of 1500 m to 3200 m. This plant is distributed in world in India, China and Burma. Due the highly economic status of plant and endemic to certain area the conservation of this plant is required. Due to these utilization numbers of plants decreases in the study area. In the recent period the plant is also used by the various industries as mention in the uses of *Euonymus tingens* Wall and plant is also extracted for the various experiments. The plant is found slopes so habitat degradation due to landslides and anthropogenic activities such as construction of roads the plant came under the threats. That's why the conservation of plants is required for the future purposes. Conservation of this plant is through the propagation of this plant through the various techniques like sowing the seed. The seeds are best sown when they are fully ripe in a cold frame. Stored seed of plant requires three months cold stratification, so seed should be sown as early in the year in the month of January. The seed can germinate after long time, it take about 15-18 months for germination. Cuttings of half-ripe wood, 10- 12 cm long taken at a node or with a heel, July-September in pots. Due to a long dormancy period of seed it cannot grow easily in the field, the number of plant germination in the field is less and demand of plant is more than its population in wild that's why the conservation of the plant is immensely needed.

IV. RESULT

Euonymus tingens Wall. is an important economic plant of the Himalayan States Himachal Pradesh and Uttarakhand. The plant is uses for medicine, religious, fuel, dye, fodder. It is found in certain restricted area of India so its conservation is must be required for its beneficial uses. It is a future plant for the next generations. It is cultivated by seed sowing and through the cutting methods in preferable seasons.

ACKNOWLEDGEMENT

The authors are grateful to the MOEF & CC, Govt. of India, New Delhi for providing financial support, necessary facilities and to the Director, Botanical Survey of India, Kolkata for their proper guidance and kind co-operation during research purpose



Euonymus tingens Wall. Plant Twig bearing fruit



Euonymus tingens Wall. Plant habitat showing threat

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