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Myrica nagi (Kaphal: A wild fruit of Himalaya)

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Abstract

Myrica nagi, kaphal, a wild fruit of sub-temperate evergreen tree found throughout various districts of mid Himalaya regions mostly the areas situated in Himachal Pradesh. It is widely present in Mandi district of Himachal Pradesh. Tree has medium height of 20 to 25 feet. Fruits are small seed, bright deep red in color turning nearly purple at full maturity. Fruit has pleasant, sweet and sour taste but it does not keep for very long time, not more than two days. It contains various active chemical compounds such as myricetin, myricitrin and glycosides. It is important shrub used in traditional medicines to treat various diseases such as diarrhea, typhoid and dysentery. It also shows anti-fungal, anti-bacterial, anti-inflammatory properties. Kaphal fruit has flooded in the market of various districts of Himachal Pradesh mostly in Mandi. Increase in use of this tree as fruit and in medicines, results in declining of yield as per season. So it is important to protect this wild fruit for future use.

Keywords: *Myrica nagi*, wild fruit, Himalayan region, fruit yield, rural economy, cultivation

Introduction

Himalaya has varied climatic conditions due to variations in altitude and topography, which makes this region a home for wide variety of plants. Himachal Pradesh gives maximum yield of important drugs obtained from various medicinally important plants all over India.

Myrica nagi (a wild fruit) another important plant used in various ailments. It is small tree or large shrub native to hills of northern India and Nepal. It is commonly known as bay-berry, box myrtle in English, kaifal in Hindi, kathphal in Sanskrit, capital In Urdu and kaphal in Himachal Pradesh. It is one of tastiest wild fruits of sub Himalayan regions. This fruit carries a lot of commercial importance and every year its fruit worth thousands of rupees as sold in different towns of Himachal Pradesh. Kaphal is not cultivated at all, but is still sold in large quantities in market in the state.



Myrica nagi

Scientific Classification
Kingdom: Plantae
Order: Fagales
Family: Myricaceae
Genus: *Myrica*
Species: *nagi*

Morphology

It has tree of medium height that is 20 to 25 feet. It is medium to large woody, evergreen dioeciously tree. The male and female tree are similar in appearance. Bark is soft and brittle.

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Leaves are conjoint, almost crowded towards the end, branched and lance late, 1 to 2 feet long that has leaflets in pair of 6 to 9 and has width of ¼ inch.

According to Ayurveda, flower has two varieties: Shweta (white) and Rakta (red). Flower is small, sessile, solitary and bracteate, septate and petal either absent or not visible. It has 12stamen each with very short filament and racemes inflorescence is present.

Fruits are small, seedy, and bright in color, globose, succulent drupe with hard endocarp.

Seeds are triangular in shape and are astringent in taste, 9m long, 5mm in diameter, volume 131 microlitres.

The flowering and fruiting season

The flowering season starts from the first fortnight (a period of fourteen nights; two weeks) of February and continues till the second fortnight of April. The fruiting season started from the first week of May and continued till the last week of this month.

Chemical Constituents

The bark is yellow and contains the chemical substances myricetin, myricitrin and glycosides.

Myricetin is important chemical constituents found in *Myrica nagi*.

Myricetin 50, yellow-beige powder crystalline powder, a flavonol, consisting of 3-hydroxyflavone backbone and 6 hydroxyl groups has been extracted from the leaves and fruits of the species.

Through literature survey, it is found that there are a lot of benefits of Myricetin to health as it possess wide variety of biological effects, as antioxidant and free radical scavenging activities. Myricetin has anti-cancer, antimutagenic and anti-inflammatory properties.

Leaves of plant contain flavone-4'-hydroxy-3', 5, 5'-trimethoxy-7-o-beta-1-D-glucopyranosyl, beta-sitosterol and quercetin. Leaves are also reported to constitute 4-hydroxy-1,8-cineole 4-O-Dapiofuranosyl-(1→6)-β-D-glucopyranoside, (1S,2S,4R)-2-hydroxy-1,8-cineole β-D-glucopyranoside, corchoionoside C, (6S,9R)-roseoside, myricanol, 5-O-β-D-glucopyranosyl myricanol, arjunolic acid, arjunglucoside, 3-epi-ursonic acid, 3-O-(E)-caffeoylursonic acid, myricetin, myricitrin³⁶.

Fruits also contain many mineral such as sodium, potassium, calcium, manganese, copper, iron and zinc.

In a study done on the chemical constituents thirteen compounds myricitrin, myricanol,

Myricanone, gallic acid, ethyl β-Dglucopyranoside, 3-hydroxybenzaldehyde, isovanillin, 4-methoxybenzoic acid, 4-(hydroxymethyl) phenol, β-sitosterol, daucosterol were isolated by silica gel column chromatography and recrystallization. In this study conformation of Myricanol was done by X-ray diffraction for the first time.

Uses

Plant has many uses to cure various diseases in form of paste, oil and in powder form as explain below:

Paste is used in applying on wounds, lymphadenopathy (an abnormal enlargement of lymph nodes), toothache, joint pains, paralysis and vaso-constriction (constriction of blood vessel).

Oil used as nasal drops in case of consciousness, rhinitis (inflammation of mucous membranes of nose).

Powder is very important in reducing pain and treatment nerve debility. It is very essential in improving digestive

system and also increases the appetite; it is also help in improving the circulation. It is very helpful in supporting the uterine contraction during parturition.

It is also good aphrodisiac agent (arousing and intensifying sexual desire).

It is also helpful in treating the skin related problems.

Pharmacological Properties

There is wide scope of utilization of this species as bioactive chemical compounds of tree have several pharmacological properties such as, anti-inflammatory, anti-oxidant, antihelmintic (destructive intestinal worms), anti-microbial, anxiolytic(that reduces anxiety), mast cell stabilizing, hypertension, hepatoprotective(drug that prevents damage to liver), anti-bacterial, anti-fungal and anti-asthmatic.

Various studies show that kaphal has good nutritional value.

Threat and Conservation

Kaphal, a wild fruit has flooded in the market of district of himalayan region. Nearly 15-20 tones-of fruit worth rupees 25-30 lakh is sold in various markets every year. Kaphal is not cultivated but is sold in large quantities in various parts of himalayan region mostly in Himachal Pradesh. As a result the yield of *Myrica nagi* is declining in every season. If no step would be taken by government to cure the species then in future it will be extinct. Also peoples should be aware to take step for cultivation of not only this wild species but also every important medicinal plant. Every year various pharmacological companies extract the important drugs from medicinal plants but no step taken by them for cultivation. So it is our responsibilities to protect or regenerate these important species for future generation. Myricetin is important naturally occurring compound can be further used for diabetes, brain diseases, etc. It is very useful to utilize this compound by working on other pharmacological studies because medicinal herbs as the potential source of therapeutics aids has attained a significant role in health system all over the world for both humans and animals not only in the diseased condition but also as a potential material for maintaining proper health. As *Myrica nagi* is endangered species and various steps should be taken to protect the tree from extinction.

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