



INTERNATIONAL JOURNAL OF TROPICAL AGRICULTURE

ISSN : 0254-8755

available at <http://www.serialsjournal.com>

© Serials Publications Pvt. Ltd.

Volume 35 • Number 3 • 2017

Kafal (*Myrica esculenta*)- a potential underutilized fruit in temperate ecosystem

A. K. Shukla, K. K. Pramanick and Santosh Watpade

ICAR-Indian Agriculture Research Institute, Regional Station, Shimla-171004, E-mail: akshuklabort@gmail.com

Abstract: Kafal (*Myrica esculenta*) sub-temperate evergreen tree found throughout the mid-Himalayas, starting from about 1,300 metres and going up to about 2,100 metres. It is globally distributed across Indo-Malesian region. In India, genetic diversity has been recorded in Jammu & Kashmir, Himachal Pradesh, Utterakhand, Sikkim, Arunachal Pradesh, Assam, Meghalaya, Nagaland, Manipur and Mizoram. Kafal belongs to the family Myricaceae. The tree yields a drupaceous fruit which is one of the tastiest wild fruits of the sub-Himalayan region. This fruit tree carries a lot of commercial importance and every year its fruits worth thousands of rupees are sold in different towns of Himachal Pradesh. It is rich source of antioxidant and polyphenol. Kafal is known for anti-aging property. Pulp content varied from 45-70%, fruit weight 5-25g, TSS 18-21.5%, yield/tree 12-25 kg/tree depending on canopy size. The fruits having poor shelf-life does not exceed 2-3 days. Juice content varied from 35-45%. The major problem in the case of this fruit is that the harvesting period is too long and fruits from a single tree have to be harvested in many pickings.

Key words: Kafal, genetic diversity, hill ecosystem

INTRODUCTION

Kafal (*Myrica esculenta*) is also known as Box myrtle, bayberry, kaiphal, sohphi, katphala, belongs to family Myricaceae. It is delicious wild fruits found throughout mid-Himalayan region. The fruit looks somewhat like deep-red coloured raspberries. They barely have any pulp, have a big round seed in the

center. The bark is yellow and contains the chemical substances myricetin, myricitrin and glycosides. Leaves of the plant also contain flavone-4'-hydroxy-3',5,5'-trimethoxy-7-O- β -D-glucopyranosyl (1 \rightarrow 4)- α -L-rhamnopyranoside; flavone-3',4'-dihydroxy-6-methoxy-7-O- α -L-rhamnopyranoside; β -sitosterol; β -sitosterol- β -D-glucopyranoside and quercetin

(Tapan Seal, 2011). A medium to large woody, evergreen, dioecious tree, 12 to 15 metres high; trunk girth, ranges from 55-95 cm; the male and the female trees have almost similar appearance. Leaves, almost crowded towards the end of branches, lanceolate, 9.2 cm long, 3.2 cm broad; lower surface, pale green; upper surface, dark green. Pistillate flowers, very small, sessile, solitary and bracteate; sepals and petals, either absent or not visible; inflorescence, a catkin, 4.2 cm long, axillary, bearing about 25 flowers; only a thread-like style visible with the unaided eye. Each staminate flower has about 12 stamens with a very short filament, a compound raceme inflorescence, about 3.5 cm long. The flowering season starts from the first fortnight of February and continues till the second fortnight of April. The peak flowering season was observed to occur during the first fortnight of March. Similarly the fruiting season started from the first week of May to last week of May. Light to dark red coloured succulent drupe, with a hard stone. The bark of kaphal is said to possess many medicinal properties. It is heating, stimulating and useful in catarrhal fever, cough and in the affections of the throat. An oil prepared from it is dropped into ears to stop earache. Bark is also reported to be acrid, bitter, pungent, and useful in disorders relating to vata and kapha, fever, asthma, urinary discharges, piles, bronchitis, throat complaints, tumours, anemia, chronic dysentery and ulcers. Its snuff is useful in headache and in curing eye diseases. The oil from the flowers is a tonic, useful in earache, diarrhea and paralysis. The plants can be propagated from seeds, stem cuttings, and suckers. Propagation from seeds, require extraction of seeds from fully matured fruits. The seeds are stratified for 3 months in refrigerator. The stratified seeds are planted in the plastic bags or in the nursery for germination in the spring season. The seedlings of 10-15 cm height are planted in the field in late spring. For propagation from cuttings, soft or half ripened wood of 5-8 cm are taken in the month of July-August and treated with IBA 3000 PPM. If suckers

are to be used for propagation, it should be taken in dormant season and plant them directly at the desired place.

Nutritional value and uses: The fruits of kaphal are rich in minerals and have good nutritional value. The nutritional value per 100 g edible fruit is given below.

S.No	Nutrients	Quantity (100 g edible fruits)
1.	Energy (kcal)	386.80
2.	Sodium (mg)	0.75
3.	Ash (%)	1.91
4.	Potassium (mg)	7.63
5.	Moisture (%)	71.40
6.	Calcium (mg)	4.23
7.	Crude fat (%)	4.93
8.	Manganese (mg)	0.041
9.	Protein (%)	9.28
10.	Copper (mg)	0.005
11.	Crude fibre (%)	7.53
12.	Iron (mg)	0.417
13.	Carbohydrate (%)	76.33
14.	Zinc (mg)	0.317

Source: Tapan Seal, 2011

Genetic variability and resources:

Observation on variability ranges for different characters of kafal from different part of Himachal Pradesh-

Plant height-10-35 feet

Canopy size-2.5-5 feet-2.75-5.5 feet

Leaf size (LxW) -5-10 cm x 2.5-4.0 cm

Pulp content- 45-70%

Fruit weight- 5-25g

TSS- 18-21.5%

Yield/tree- 12-25 kg/tree (depending on canopy size)

Shelf life- 2-3 days

Juice content- 35-45%.

Fruit colour- light red to dark red

Kafal (Myrica esculenta)- a potential underutilized fruit in temperate ecosystem

Fruit size (LxB)-1.2-3.5 cm x 1.1-3.25 cm

Stone weight (seed)-2.5-15.2g

Flowering period- Mid February – April end.

Number of flowers per catkin- 20-25

Two accessions viz. IC349959 and IC558086 were collected from midhills of Himachal Pradesh and have been established in the field gene bank. Germplasm is also maintained at the Regional Research Station, Kandaghat of Dr. YSP UHF, Solan and also at NBPGR Regional Station, Shillong (Rana and Verma, 2011) . Genetic variability at ICAR-IARI, Regional Station, Shimla have also been conserved and maintained for further characterization and utilization.

Kafal being rich in nutritional content, highly demanding fruit of temperate region it needs to standardise package of practices and further improvement for yield and quality parameters. There is requirement of conducting exhaustive survey of available natural variability in hill ecosystem and elite genotypes are to be collected and conserved.

REFERENCES

- Rana, J.C. and V.D. Verma (2011), Genetic Resources of Temperate Minor Fruits. National Bureau of Plant Genetic Resources Regional Station, Phagli, Shimla pp. 1-61.
- Seal Tapan (2011), Antioxidant Activity of Some Wild Edible Fruits of Meghalaya State in India. *Advances in Biological Research* 5 (3): 155-160.